National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for **General Motors Powertrain Division**

Public Notice No.: 09-05-098
Public Notice Date: May 25, 2009
Comment Period Ends: June 25, 2009

OEPA Permit No.: **2IN00004*ID**
Application No.: **OH0002666**

Name and Address of Applicant:

General Motors Powertrain
P.O. Box 70
Defiance, Ohio 43512

Name and Address of Facility Where Discharge Occurs:

General Motors Powertrain
26427 State Route 281 East
Defiance, Ohio 43512
Defiance County

Receiving Water: **Maumee River**

Subsequent
Stream Network: **Lake Erie**

Introduction

Development of a Fact Sheet for NPDES permits is required by Title 40 of the Code of Federal Regulations, Section 124.8 and 124.56. This document fulfills the requirements established in those regulations by providing the information necessary to inform the public of actions proposed by the Ohio Environmental Protection Agency, as well as the methods by which the public can participate in the process of finalizing those actions.

This Fact Sheet is prepared in order to document the technical basis and risk management decisions that are considered in the determination of water quality based NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines and other treatment-technology based standards, existing effluent quality, instream biological, chemical and physical conditions, and the allocations of pollutants to meet Ohio Water Quality Standards. This Fact Sheet details the discretionary decision-making process empowered to the director by the Clean Water Act and Ohio Water Pollution Control Law (ORC 6111). Decisions to award variances to Water Quality Standards or promulgated effluent guidelines for economic or technological reasons will also be justified in the Fact Sheet where necessary.

Effluent limits based on available treatment technologies are required by Section 301(b) of the Clean Water Act. Many of these have already been established by U.S. EPA in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations (40 CFR Part 133). If regulations have not been established for a category of dischargers, the director may establish technology-based limits based on best professional judgment (BPJ).

Ohio EPA reviews the need for water-quality-based limits on a pollutant-by-pollutant basis. Wasteload allocations are used to develop these limits based on the pollutants that have been detected in the discharge, and the receiving water's assimilative capacity. The assimilative capacity depends on the flow in the water receiving the discharge, and the concentration of the pollutant upstream. The greater the upstream flow, and the lower the upstream concentration, the greater the assimilative capacity is. Assimilative capacity may represent dilution (as in allocations for metals), or it may also incorporate the break-down of pollutants in the receiving water (as in allocations for oxygen-demanding materials).

The need for water-quality-based limits is determined by comparing the wasteload allocation for a pollutant to a measure of the effluent quality. The measure of effluent quality is called PEQ - Projected Effluent Quality. This is a statistical measure of the average and maximum effluent values for a pollutant. As with any statistical method, the more data that exists for a given pollutant, the more likely that PEQ will match the actual observed data. If there is a small data set for a given pollutant, the highest measured value is multiplied by a statistical factor to obtain a PEQ; for example if only one sample exists, the factor is 6.2, for two samples - 3.8, for three samples - 3.0. The factors continue to decline as samples sizes increase. These factors are intended to account for effluent variability, but if the pollutant concentrations are fairly constant, these factors may make PEQ appear larger than it would be shown to be if more sample results existed.

Summary of Permit Conditions

Due to production changes, several of the limits in this NPDES permit would be lowered to meet federal treatment technology guidelines. Draft effluent loading limits for total suspended solids, oil&grease, lead, zinc and total phenolics (winter) are lower than current permits. Current load limits for copper and total phenolics (summer) are more restrictive than the effluent guidelines, and would be continued in the new permit.

Concentration limits for oil&grease, zinc, and maximum lead are proposed to continue. The 30-day concentration limits for lead, and average and maximum limits for copper are slightly more restrictive than current limits, based on the new wasteload allocation. The allocation changed primarily because downstream hardness values have decreased slightly during the last five years. It appears that GM can currently meet these lower water quality-based limits.

Current monitoring requirements for ammonia-nitrogen, barium, free cyanide, dissolved solids and mercury and bis(2-ethylhexyl)phthalate are proposed to continue in the new permit. A few of these parameters would be given reduced monitoring frequencies based on effluent data.

The draft permit contains a new monitoring requirement for fluoride, based on the wasteload allocation and reasonable potential rules.

Current monitoring requirements for antimony, cadmium, molybdenum and strontium would be removed from the permit because the discharge levels have no reasonable potential to cause or contribute to exceedances of water quality standards.

The draft permit contains an annual chronic toxicity test requirement, with acute endpoints measured, to track any changes that may occur due to variable production and discharge levels.

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Procedures for Participation in the Formulation of Final Determinations

The draft action shall be issued as a final action unless the Director revises the draft after consideration of the record of a public meeting or written comments, or upon disapproval by the Administrator of the U.S. Environmental Protection Agency.

Within thirty days of the date of the Public Notice, any person may request or petition for a public meeting for presentation of evidence, statements or opinions. The purpose of the public meeting is to obtain additional evidence. Statements concerning the issues raised by the party requesting the meeting are invited. Evidence may be presented by the applicant, the state, and other parties, and following presentation of such evidence other interested persons may present testimony of facts or statements of opinion.

Requests for public meetings shall be in writing and shall state the action of the Director objected to, the questions to be considered, and the reasons the action is contested. Such requests should be addressed to:

Legal Records Section
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049

Interested persons are invited to submit written comments upon the discharge permit. Comments should be submitted in person or by mail no later than 30 days after the date of this Public Notice. Deliver or mail all comments to:

Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits and Compliance Section
P.O. Box 1049
Columbus, Ohio 43216-1049

The OEPA permit number and Public Notice numbers should appear on each page of any submitted comments. All comments received no later than 30 days after the date of the Public Notice will be considered.

Citizens may conduct file reviews regarding specific companies or sites. Appointments are necessary to conduct file reviews, because requests to review files have increased dramatically in recent years. The first 250 pages copied are free. For requests to copy more than 250 pages, there is a five-cent charge for each page copied. Payment is required by check or money order, made payable to Treasurer State of Ohio.

Questions about permit conditions should be directed to Dana Martin-Hayden at (419) 373-3067 (email dana.martin-hayden@epa.state.oh.us) or Eric Nygaard at (614) 644-2024 (email eric.nygaard@epa.state.oh.us).

Location of Discharge/Receiving Water Use Classification

GM Powertrain discharges to Maumee River at River Mile (RM) 62.04 (Outfall 001) and 61.78 (Outfall 002). The approximate location of the facility is shown in Figure 1.

This segment of the Maumee River is described by Ohio EPA River Code: 04-001, USEPA River Reach #: 04100009-009, County: Defiance, Ecoregion: Huron Erie Lake Plain. The Maumee River is presently designated for the following uses: Modified Warmwater Habitat (MWH – impounded habitat), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Primary Contact Recreation (PCR).

Use designations define the goals and expectations of a waterbody. These goals are set for aquatic life protection, recreation use and water supply use, and are defined in the Ohio WQS (OAC 3745-1-07). The use designations for individual waterbodies are listed in rules -08 through -32 of the Ohio WQS. Once the goals are set, numeric water quality standards are developed to protect these uses. Different uses have different water quality criteria.

Use designations for aquatic life protection include habitats for coldwater fish and macroinvertebrates, warmwater aquatic life and waters with exceptional communities of warmwater organisms. These uses all meet the goals of the federal Clean Water Act. Ohio WQS also include aquatic life use designations for waterbodies which can not meet the Clean Water Act goals because of human-caused conditions that can not be remedied without causing fundamental changes to land use and widespread economic impact. The dredging and clearing of some small streams to support agricultural or urban drainage is the most common of these conditions. These streams are given Modified Warmwater or Limited Resource Water designations.

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (Primary Contact) and wading only (Secondary Contact - generally waters too shallow for swimming or canoeing).

Water supply uses are defined by the actual or potential use of the waterbody. Public Water Supply designations apply near existing water intakes so that waters are safe to drink with standard treatment. Most other waters are designated for agricultural and industrial water supply.

Facility Description

GM manufactures gray and nodular iron castings and aluminum castings for automobile and truck parts and industrial uses. The process operations performed at this facility are classified by the Standard Industrial Classification (SIC) codes 3321, "Gray Iron Foundry" and 3315, "Aluminum Foundry." Discharges resulting from process operations are therefore subject to Federal Effluent Guideline Limitations, contained in Chapter 40 of the Code of Federal Regulations, Part 464, "Metal Molding and Casting" Industrial Category. Specifically, Subpart C of the guidelines apply to the following iron casting wastewaters: 1) Casting Cleaning/Media Scrubber; 2) Dust Collection Scrubber; 3) Slag Quench and 4) Melting Furnace Scrubber. Subpart A of the guidelines apply to the following aluminum casting wastewaters: Casting Quench.

Description of Existing Discharge

Outfall 001 discharges process wastewater, cooling water and storm runoff. Most of the facility's wastewater (approximately 31 MGD) is recycled. Approximately, 1.5 MGD on average is discharged from Outfall 001. The effluent is treated by settling, ion exchange, precipitation, filtration and carbon adsorption.

Outfall 002 contains process and storm water; it discharges only during heavy storm events. Discharges from this outfall are considered to be bypasses because the only treatment of these flows is settling.

Outfall 004 discharges storm water from a ditch on the west side of the property. Outfall 005 discharges storm runoff from the on-site solid waste landfill.

Table 1 presents a summary of analytical results for outfall 001 effluent samples compiled from the NPDES application submitted by the GM Powertrain, and from bioassay tests done by Ohio EPA. The monthly average PEQ_{avg} and daily maximum PEQ_{max} decision criteria are also included on this table.

Table 2 presents a summary of unaltered monthly operation report data for the period January 2003 to July 2008 for the GM Powertrain as well as current permit limits, and monthly average PEQ_{avg} and daily maximum PEQ_{max} values.

Table 3 presents results from acute bioassay tests conducted on the final discharge. Pimephales promelas (fathead minnows), and Ceriodaphnia dubia (water flea) were the test organisms.

Receiving Water Quality / Environmental Hazard Assessment

Attachment A to this fact sheet contains the table from the *2008 Integrated Water Quality Monitoring and Assessment Report* (Ohio EPA) summarizing the attainment status of the Maumee River from the Indiana border to Lake Erie. Flow and habitat alteration, turbidity, nutrients, unionized ammonia, siltation and total toxics are listed as "high magnitude causes" of impairment. Combined sewer overflows and major municipal point sources are listed among the "high magnitude sources" of impairment, along with agricultural practices.

Development of Water-Quality-Based Effluent Limits

Determining appropriate effluent concentrations is a multiple-step process in which parameters are identified as likely to be discharged by a facility, evaluated with respect to Ohio water quality criteria, and examined to determine the likelihood that the existing effluent could violate the calculated limits.

Parameter Selection

Effluent data for the GM Powertrain were used to determine what parameters should undergo wasteload allocation. The parameters discharged are identified by the data available to Ohio EPA - Monthly Operating Report (MOR) data submitted by the permittee, compliance sampling data collected by Ohio EPA, and any other data submitted by the permittee, such as priority pollutant scans required by the NPDES application or by pretreatment, or other special conditions in the NPDES permit. The sources of effluent data used in this evaluation are as follows:

Self-monitoring data (LEAPS)	January 2003 through July 2008
NPDES Application data	2008
OEPA compliance sampling data	2006

The effluent data was evaluated for outliers and one value for chlorine (0.24 mg/l) and two values for mercury (3.9 ng/l, 5.8 ng/l) were removed from the data set.

This data is evaluated statistically, and Projected Effluent Quality (PEQ) values are calculated for each pollutant. PEQavg values represent the 95th percentile of monthly average data, and PEQmax values represent the 95th percentile of all data points.

The average and maximum projected effluent quality (PEQ) values are presented in Table 4. For a summary of the screening results, refer to the parameter groupings in Table 8.

PEQ values are used according to Ohio rules to compare to applicable WQS and allowable WLA values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25% of the applicable WQS, the parameter does not have the reasonable potential to cause or contribute to exceedances of WQS, and no wasteload allocation is done for that parameter. If either PEQavg or PEQmax is greater than 25% of the applicable WQS, a wasteload allocation is conducted to determine whether the parameter exhibits reasonable potential (and needs to be limited) or if monitoring is required.

Wasteload Allocation

For those parameters that require a wasteload allocation (WLA), the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. Dischargers are allocated pollutant loadings/concentrations based on the Ohio Water Quality Standards (WQS - OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water. Wasteload allocations using this method are done using the following general equation: Discharger WLA = (downstream flow x WQS) - (upstream flow x background concentration). Discharger WLAs are divided by the discharge flow so that the WLAs are expressed as concentrations. The wasteload allocation for this segment divided loads between the GM Powertrain outfall 001, GM's remediation discharge (2IN00202001) and the Defiance Wastewater Treatment Plant discharge. Allocations were distributed on a flow-proportional basis, resulting in equal concentration WLAs for each discharge.

The applicable waterbody uses for this facility's discharge and the associated stream design flows are as follows:

Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia-nitrogen	Average	Summer 30Q10
		Winter 30Q10
Agricultural Water Supply		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow
Wildlife Protection		Annual 90Q10

Allocations are developed using a percentage of stream design flow (as specified in Table 6), and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

The data used in the WLA are listed in Tables 5 and 6. The wasteload allocation results to maintain all applicable criteria are presented in Table 7.

Dissolved Metals Translators

A dissolved metals translator (DMT) is the factor used to convert a dissolved metal aquatic life criterion to an effective total recoverable aquatic life criterion with which a total recoverable aquatic life allocation can be calculated as required by NPDES permit rules [OAC Rule 3745-33-05(C)(2)]. Currently, a DMT is based on site- or area-specific field data; each field data sample consists of a total recoverable measurement paired with a dissolved metal measurement. For Maumee River, there were six such paired samples available applicable to chromium, copper, lead, nickel and zinc. To account for the limited quantity of data, the DMT for each of these metals was determine as the lower end of the 95% confidence interval (1-tail) about the geometric mean of the total recoverable-to-dissolved ratios of the sample pairs. Each DMT is metal-specific and is applied by multiplying the dissolved criteria by the DMT, resulting in total effective recoverable criteria which are used in the wasteload allocation procedures.

Reasonable Potential

The preliminary effluent limits are the lowest average WLA (average PEL) and the maximum WLA (maximum PEL). To determine the reasonable potential of the discharger to exceed the WLA for each parameter, the facility's effluent quality is compared to the preliminary effluent limits. The average PEQ value (Table 6) is compared to the average PEL, and the maximum PEQ value is compared to the maximum PEL. Based on the calculated percentage of the respective average and maximum comparisons, the parameters are assigned to "groups", as listed in Table 8.

Whole Effluent Toxicity WLA

Whole effluent toxicity or "WET" is the total toxic effect of an effluent on aquatic life measured directly with a toxicity test. Acute WET measures short term effects of the effluent while chronic WET measures longer term and potentially more subtle effects of the effluent.

Water Quality Standards for WET are expressed in Ohio's narrative "free from" WQS rule (OAC 3745-1-04(D)). These "free froms" are translated into toxicity units (TUs) by the associated WQS Implementation Rule (OAC 3745-2-09). Wasteload allocations can then be calculated using TUs as if they were water quality criteria.

The wasteload allocation calculations for WET are similar to those for aquatic life criteria (using the chronic toxicity unit (TU_c) and 7Q10 for average and the acute toxicity unit (TU_a) and 1Q10 for maximum). These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For GM Powertrain, the wasteload allocation values are 1.0 TU_a and 9.5 TU_c.

The chronic toxicity unit (TU_c) is defined as 100 divided by the IC_{25}:

$$TU_c = \frac{100}{IC_{25}}$$

This equation applies outside the mixing zone for warmwater, modified warmwater, exceptional warmwater, coldwater, and seasonal salmonid use designations except when the following equation is more restrictive (Ceriodaphnia dubia only):

$$TUc = \frac{100}{\text{geometric mean of NOEC and LOEC}}$$

The acute toxicity unit (TU_a) is defined as 100 divided by the LC50 for the most sensitive test species:

$$TU_a = \frac{100}{LC50}$$

This equation applies outside the mixing zone for warmwater, modified warmwater, exceptional warmwater, coldwater, and seasonal salmonid use designations.

Effluent Limits/Hazard Management Decisions

Federal and State laws/regulation require that dischargers meet both treatment technology-based limits and any more stringent standards needed to comply with state WQS. Permit limits are based on the more restrictive of the two. The listing in Table 8 reflects the hazard assessment (or "groupings") done according to WLA procedures. Tables 9 and 10 show the draft NPDES limits and monitoring requirements for GM Powertrain. The draft limits include consideration of treatment technology-based limits, whole effluent toxicity reasonable potential evaluations and other portions of NPDES rules, as well as the water quality-based limits.

Outfall 001:
Outfall 001 is the main outfall for process wastewaters at GM Powertrain. Effluent limits are required for the pollutants regulated by the federal Metal Molding and Casting effluent guidelines. Some of these limits are continued from the current permit because the current limits are more restrictive than effluent guidelines. These pollutants include total phenolics (summer), and concentration limits for oil&grease and zinc. The loading limits for total suspended solids, total phenolics (winter), lead and zinc are based on revised effluent guidelines showing that lower limits are needed to meet the effluent guideline limits. Copper loading limits would continue; the 30-day concentration limits for copper and lead, and the maximum concentration limits for copper would become slightly more restrictive. The updated wasteload allocation generated these new limits for these metals, due primarily to lower hardness values measured in the Maumee River during the last five years.

Concentration and loading limits for these parameters do not correspond by flow. Because of flow conservation practiced by the plant (process water reuse), loading and concentration limits for wasteload-allocated pollutants may have different bases.

Treatment-technology-based limits for the Metal Molding and Casting Industry, found in 40 CFR Part 464, are based on the kilograms of pollutant allowed to be discharged per 1000 kg. of production (or ponds per thousand pounds of production). The applicable effluent guidelines are BPT/BAT for iron casting processes, and new source performance standards (NSPS) for aluminum casting processes. Iron casting at this facility predates the effluent guideline rules; aluminum casting has only been going on for the last 7-8 years and is therefore a new source.

The plant production rates used are from information supplied by GM. Limits are calculated as follows: TSS limits (kg./day) = BCT (kg./kkg.) x production (kkg./day), or

For 30-day TSS = [2.73 lbs./million lbs x (180 tons/day / 2000 lbs./ton / 1million) / 2.2 lbs./kg.] + [11.3 lbs/billion standard cubic feet of air scrubbed x 6.09 billion scf /2.2 lbs/kg.] + [52.6 lbs/billion scf x 0.428 billion scf / 2.2 lbs.kg.] + [0.182 lbs./million lbs x (22 tons/day/ 2000 lbs./ton / 1million) / 2.2 lbs./kg.] = 42.0 kg/day.

Effluent guideline allowances for maximum TSS, and oil&grease, copper, lead, zinc and total phenolics can be calculated the same way. All of the effluent guideline calculations are listed in Attachment B of this fact sheet.

The effluent guideline calculations for TSS are more restrictive than the current limits. Effluent guideline calculations for other pollutants show that the current limits are more restrictive than BAT/BCT/New Source standards.

Limits proposed for pH are based on Water Quality Standards (OAC 3745-1).

The proposed limit for total residual chlorine is based on wasteload allocation as limited by the inside mixing zone maximum (IMZM). The IMZM is a value calculated to avoid rapidly lethal conditions in the effluent mixing zone. This limit is included because it is difficult to establish reasonable potential when both effluent data and limits are less than quantification levels.

The Ohio EPA risk assessment (Table 8) places fluoride in group 5 which recommends limits to protect water quality. However, due to the small data set, the effluent PEQ values may not be representative of the discharge. Using the discretion allowed the Director under OAC 3745-33-07(A)(5), we are proposing monitoring, rather than limits, for fluoride.

Ohio EPA risk assessment (Table 8) places ammonia-N, bis-2EHP, free cyanide and mercury in group 4. This placement, as well as the data in Tables 1, 2 and 4 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring for Group 4 pollutants (where PEQ exceeds 50% of the WLA) is required by OAC Rule 3745-33-07(A)(2).

In addition, the free cyanide effluent quality falls within 75% of the wasteload allocation. Under OAC 3745-33-07(A)(2), parameters in this range must have a tracking requirement in the permit that specifies reductions in pollutant concentrations if effluent concentrations exceed the WLA. The tracking/reduction requirements are included in Part II Item M of the draft permit.

Ohio EPA risk assessment (Table 8) places barium and dissolved solids in group 3. This placement, as well as the data in Tables 1, 2 and 4 support that these parameters do not have

the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring at a reduced frequency is proposed to document that these pollutants continue to remain at low levels. Ohio EPA believes that some level of monitoring for these pollutants is needed to verify that they do not have the reasonable potential to contribute to WQS exceedances.

Outfall 002:
Outfall 002 is a partially treated process flow from the treatment lagoons that can discharge during very high rainfall events. Because it is not fully treated, it is considered a bypass, and discharges from this outfall are not authorized except when they meet the bypass conditions in Part III of the permit. The current permit requires monitoring of this outfall whenever discharges occur. There have been two reported discharges from this outfall during the current permit cycle (see Table 2 for bypass information).

Outfalls 004/005
These outfalls are storm water from industrial activity at this site. Both outfalls have flow monitoring requirements, which would continue in the new permit. Both outfalls also are subject to the storm water pollution prevention requirements of Parts IV, V and VI of the permit.

This draft permit also contains pH monitoring and a maximum limit. The area draining into this outfall contains runoff from a parking area made of alkaline rock; pH levels have historically been elevated at this outfall. In order to maintain WQS, GM captures the first flush of storm water from this area and redirects it to the Outfall 001 treatment system. Only storm water beyond the first flush is discharged through Outfall 004. The pH limit set for Outfall 004 (9.8 S.U.) is a wasteload allocation to meet the 9.0 S.U. standard for the Maumee River.

Whole Effluent Toxicity Reasonable Potential
For the GM Powertrain outfall 001, the chronic WLA is 9.5 TU_c and acute WLA is 1.0 TU_a. For dischargers in the Lake Erie Basin, toxicity is assessed by comparing this WLA value to a PEQ value calculated from the effluent toxicity data available. If the PEQ is greater than the WLA, toxicity limits are needed in the permit. This procedure was put in place by USEPA's promulgation of toxicity reasonable potential rules for Ohio on August 4, 2000. These rules replaced Ohio's rules for dischargers in the Lake Erie basin.

Based on the acute toxicity results in Table 3, PEQ values for toxicity cannot be calculated for this discharge; no acute toxicity was observed in any of the test results, nor was chronic toxicity observed in the one test conducted (Table 3). Based on these results, the discharge does not have the reasonable potential to contribute to exceedances of toxicity WQS.

The draft permit includes an annual chronic toxicity test requirement to track changes in effluent effects with changing production and discharge levels.

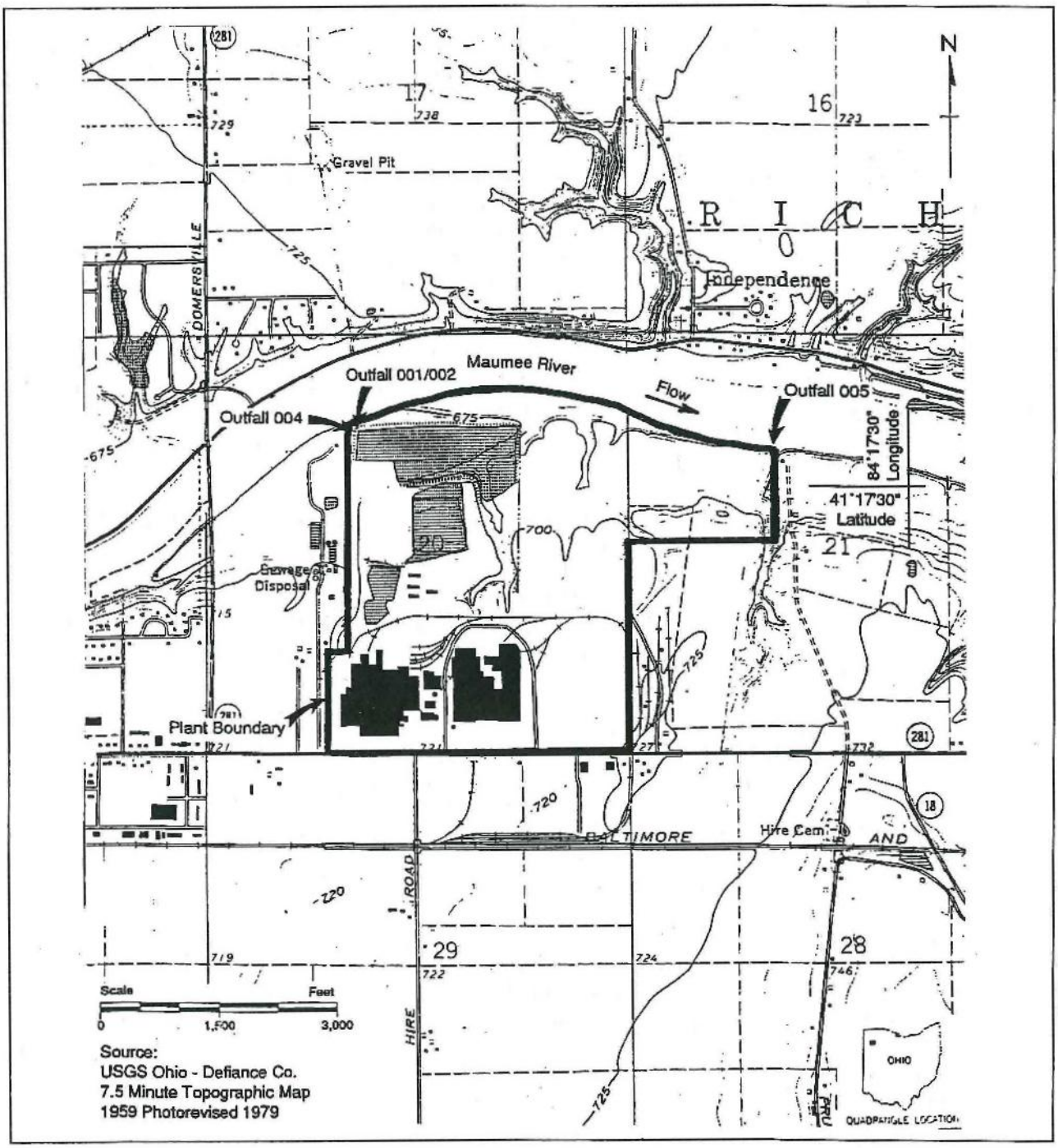

Figure 1. Approximate location of the GM Powertrain.

Table 1. Effluent Characterization Using Application and Compliance Sampling Data

Summary of analytical results for GM Powertrain outfall 2IN00004001. All values are in :g/l unless otherwise indicated. PT = data from, pretreatment program reports; 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results; * = organic nitrogen result; ** = total cyanide result.

	OEPA	OEPA	GM 2008 Application Form 2C			DECISION CRITERIA	
PARAMETER	10/03/06	11/15/06	N	mean	maximum	PEQ_{avg}	PEQ_{max}
BOD5 mg/l	8.6	NA	1	--	14		
COD mg/l	21	23	1	--	42.2		
Organic Carbon mg/l	NA	NA	1	--	35		
Dissolved Solids mg/l	756	NA	NA	NA	NA	864	964
Suspended Solids mg/l	<5	NA	43	5.8	25		
Oil&grease mg/l	25	<2.0	NA	NA	NA		
Ammonia-N mg/l	2.68	5.44	44	8.7	26	8.01	10.9
Nitrate/Nitrite-N mg/l	2.40	1.23	1	--	0.8	5.26	7.2
Kjeldahl N mg/l	4.22	7.30	1	--	3*	16.0	21.9
Phosphorus mg/l	0.184	0.391	1	--	0.11	0.86	1.17
Fluoride mg/l	NA	NA	1	--	17.9	81	111
Chloride mg/l	206	NA	NA	NA	NA	932	1277
Sulfate mg/l	NA	NA	1	--	181	819	1122
Chlorine, T. Res mg/l	NA	NA	44	0.003	0.03	0.021	0.027
Cyanide, free mg/l	<0.005	<0.005	5	0.003**	0.02**	0.014	0.019
Hardness mg/l	217	222	NA	NA	NA		
Antimony	5.5	NA	1	--	ND	12.6	20.2
Arsenic	2.0	<2.0	1	--	ND	4.4	6.0
Barium	26	<15	NA	NA	NA	55	73
Boron	NA	NA	1	--	436	1973	2703
Iron	138	132	1	--	349	764	1047
Lead	2.3	2.0	44	3.58	17.1	13.1	19.6
Magnesium mg/l	12	12	1	--	13.5	19.6	40.5
Manganese	435	471	1	--	780	1708	2340
Mercury ng/l	<200	<200	5	0.26	0.71	0.9	1.3
Molybdenum	NA	NA	5	49.34	74.2	125	171
Potassium mg/l	31	22	NA	NA	NA		
Strontium	685	588	NA	NA	NA	858	1027
Zinc	11	27	44	56.11	156	122	179
Phenolics	14.2	26	44	17.61	170	97	133
Bromomethane	1.34	<0.50	1	--	ND	2.9	4.0

Table 2. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered monthly operating report (MOR) data for GM Powertrain outfalls 2IN00004001 and 2IN00004002. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50th	95th		# Obs.	PEQ_{avg}	PEQ_{max}
Outfall 001											
pH	Annual	S.U.	6.5 to 9.0		257	7.3	7.7	6.8-7.9			
Total Suspended Solids	Annual	mg/l	Monitor		258	4	16	0-42			
Total Suspended Solids	Annual	kg/day	97.7	247	258	25.3	102	0-301			
Oil and Grease, Total	Annual	mg/l	11.6	20	257	0	0	0-9.8			
Oil and Grease, Total	Annual	kg/day	65.6	114	257	0	0	0-75.2			
Nitrogen, Ammonia (NH3)	Summer	mg/l	Monitor		121	2.1	11	0-30	80	8.01	10.9
Nitrogen, Ammonia (NH3)	Winter	mg/l	Monitor		137	12	31.6	4-50	68	19.8	27.7
Nitrogen, Ammonia (NH3)	Summer	kg/day	--	--	121	11.5	69.7	0-155			
Nitrogen, Ammonia (NH3)	Winter	kg/day	--	--	137	76.2	202	19.4-350			
Cyanide, Free	Annual	mg/l	Monitor		32	0	0.0045	0-0.016	33	0.014	0.019
Cyanide, Free	Annual	kg/day	--	--	32	0	0.0245	0-0.12			
Barium, Total Recoverable	Annual	ug/l	--	--	51	37.1	62.7	0-66.6	51	55	73
Barium, Total Recoverable	Annual	kg/day	--	--	51	0.219	0.372	0-0.476			
Molybdenum (Mo)	Annual	ug/l	Monitor		70	97	122	0-141	5	125	171
Molybdenum (Mo)	Annual	kg/day	--	--	70	0.588	0.753	0-0.85			
Strontium, Total (Sr)	Annual	ug/l	--	--	2	742	779	701-783			
Strontium, Total (Sr)	Annual	kg/day	--	--	2	5.95	6.39	5.45-6.44			
Strontium, Total Recoverable	Annual	ug/l	Monitor		17	694	901	0-964	22	858	1027
Strontium, Total Recoverable	Annual	kg/day	--	--	17	4.4	5.94	0-5.97			

Parameter	Season	Units	Current Permit Limits 30 day	Daily	# Obs.	Percentiles 50th	95th	Data Range	Decision Criteria # Obs.	PEQ_{avg}	PEQ_{max}
Outfall 001											
Zinc, Total Recoverable	Annual	ug/l	424	520	258	50.9	169	0-272	259	122	179
Zinc, Total Recoverable	Annual	kg/day	2.41	2.9	258	0.313	0.988	0-1.98			
Antimony, Total	Annual	ug/l		Monitor	2	0	0	0-0			
Antimony, Total	Annual	kg/day	--	--	2	0	0	0-0			
Cadmium, Total Recoverable	Annual	ug/l		Monitor	32	0	0	0-0			
Cadmium, Total Recoverable	Annual	kg/day	--	--	32	0	0	0-0			
Lead, Total Recoverable	Annual	ug/l	298	608	258	3.9	17.7	0-37.6	259	13.1	19.6
Lead, Total Recoverable	Annual	kg/day	1.69	3.45	258	0.0233	0.106	0-0.261			
Copper, Total Recoverable	Annual	ug/l	72	79	258	0	0	0-30	259	15	21
Copper, Total Recoverable	Annual	kg/day	0.36	0.52	258	0	0	0-0.218			
Antimony, Total Recoverable	Annual	ug/l		Monitor	18	0	14.6	0-15.5	21	12.6	20.2
Antimony, Total Recoverable	Annual	kg/day	--	--	18	0	0.0902	0-0.104			
Phenolic 4AAP, Total	Annual	ug/l		Monitor	258	0	64.2	0-190	259	97	133
Phenolic 4AAP, Total	Annual	kg/day	***	***	258	0	0.389	0-1.55			
Bis(2-ethylhexyl) Phthalate	Annual	ug/l	25	2100	23	0	9.9	0-15	22	14.2	19.5
Bis(2-ethylhexyl) Phthalate	Annual	kg/day	0.17	14.3	23	0	0.0447	0-0.104			
Flow Rate	Annual	MGD		Monitor	1681	1.64	2.28	0-2.59			
Chlorine, Total Residual	Annual	mg/l	--	0.038	257	0	0.03	0-0.24	257	0.021	0.027
Chlorine, Total Residual	Annual	kg/day	--	--	257	0	0.166	0-0.703			
Mercury, Total (Low Level)	Annual	ng/l		Monitor	32	0.53	2.53	0-5.8	33	0.9	1.3
Mercury, Total (Low Level)	Annual	kg/day	--	--	32	2.49E-06	1.82E-05	0-0.0000295			
Acute Toxicity, Ceriodaphnia dubia	Annual	TUa		Monitor	12	0	0	0-0			
Chronic Toxicity, Ceriodaphnia dubia	Annual	TUc	--	--	1	0	0	0-0			
Acute Toxicity, Pimephales promelas	Annual	TUa		Monitor	7	0	0	0-0			

Parameter	Season	Units	Current Permit Limits 30 day	Current Permit Limits Daily	# Obs.	Percentiles 50th	Percentiles 95th	Data Range	Decision Criteria # Obs.	Decision Criteria PEQ_{avg}	Decision Criteria PEQ_{max}
Outfall 001											
Chronic Toxicity, Pimephales promelas	Annual	TUc	--	--	1	0	0	0-0			
Solids, Dissolved-Sum of	Annual	mg/l		Monitor	54	772	904	600-950	55	864	964
Solids, Dissolved-Sum of	Annual	kg/day	--	--	54	5100	6310	1760-6790			
Outfall 002											
Bypass Total Hours Per Day	Annual	Hrs/Day		Monitor	2	8.25	8.48	8-8.5			
pH	Annual	S.U.		6.5 to 9.0	2	7.14	7.35	6.9-7.37			
Nitrogen, Ammonia (NH3)	Summer	mg/l		Monitor	1	3.3	3.3	3.3-3.3			
Nitrogen, Ammonia (NH3)	Winter	mg/l		Monitor	1	9.9	9.9	9.9-9.9			
Zinc, Total Recoverable	Annual	ug/l		Monitor	2	696	804	576-816			
Lead, Total Recoverable	Annual	ug/l		Monitor	2	21.8	23.9	19.5-24.1			
Copper, Total Recoverable	Annual	ug/l		Monitor	2	12.5	13.2	11.7-13.3			
Flow Rate	Summer	MGD		Monitor	1	4.5	4.5	4.5-4.5			
Flow Rate	Winter	MGD		Monitor	1	0.361	0.361	0.361-0.361			
Flow Rate	Annual	MGD		Monitor	2	2.43	4.29	0.361-4.5			
Mercury, Total Recoverable	Annual	ug/l		Monitor	2	0	0	0-0			

*** - Phenolics limits: summer- 0.33kg/day (30-day), 0.5 kg/day (daily); winter – 1.63 kg/day (30-day), 4.65 kg/day (daily)

Table 3. Summary of acute toxicity test results on the GM Powertrain 001 effluent.

Test Date(a)	*Ceriodaphnia dubia 48 hours*						*Fathead Minnows 96 hour*					
	UP	C[c]	LC_{50}[d]	%M[g]	TUa[h]	NF[i]	UP[b]	C[c]	LC_{50}[d]	%M[g]	TUa[h]	NF[i]
01/22/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/16/04 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
05/15/05 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
06/14/06 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
10/03/06 (O)	0	0	>100	0	<1.0	0	0	0	>100	0	<1.0	0
11/15/06 (O)	0	0	>100	0-5	<1.0	0	0	0	>100	45	<1.0	30
06/06/07 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
06/26/08 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = median lethal concentration
[e] EC_{50} = median effects concentration
NT = not tested

[f] %A = percent adversely affected in 100% effluent
[g] %M = percent mortality in 100% effluent
[h] TUa = acute toxicity units
[i] NF = near field sample in the Maumee River
ND = not determined
NR = not reported in OEPA database

Table 4. Effluent Data for GM Powertrain

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia-N (sum.)	mg/l	80	70	8.01	10.9
Ammonia-N (win.)	mg/l	68	68	19.8	27.7
Antimony	ug/l	21	5	12.6	20.2
Arsenic - TR	ug/l	3	1	4.38	6
Barium – TR	ug/l	51	44	55	73
Bis(2-ethylhexyl)phthalate	ug/l	22	2	14.2	19.5
Boron	ug/l	1	1	1973	2703
Bromomethane	ug/l	3	1	2.9346	4.02
Chloride	mg/l	1	1	932	1277
Chlorine TRes	mg/l	257	78	0.021	0.027
Copper - TR	ug/l	259	4	15.33	21
Cyanide - free	mg/l	33	2	0.014016	0.0192
Dissolved Solids - T	mg/l	55	55	864	964
Fluoride	mg/l	1	1	81	111
Iron - TR	ug/l	3	3	764.31	1047
Lead - TR	ug/l	259	158	13.1	19.6
Magnesium	mg/l	3	3	29.565	40.5
Manganese - TR	ug/l	3	3	1708.2	2340
Mercury – T	ng/l	33	20	0.9	1.3
Molybdenum – TR	ug/l	5	>1	125	171
Nitrate-N + Nitrite-N	mg/l	3	3	5.256	7.2
Phenolics, tot.	ug/l	259	44	97	133
Phosphorus	mg/l	3	3	0.85629	1.173
Sulfate	mg/l	1	1	819	1122
Strontium - TR	ug/l	22	21	858	1027
TKN	mg/l	3	3	15.987	21.9
Zinc - TR	ug/l	259	242	122	179

Table 5. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
			Average			Maximum	
		Wildlife	Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Ammonia (sum.)	mg/l	--	--	--	1	--	--
Ammonia (win.)	mg/l	--	--	--	3.9	--	--
Antimony	ug/l	--	780	--	190	900	1800
Arsenic - TR	ug/l	--	580	100	150	340	680
Barium – TR	ug/l	--	160000	--	220	2000	4000
Bis(2-ethylhexyl)phthalate	ug/l	--	32	--	8.4	1100	2100
Boron	ug/l	--	200000	--	950	17000	8500
Bromomethane	ug/l	--	2600	--	16	38	75
Chloride	mg/l	--	--	--	--	--	--
Chlorine TRes	mg/l	--	--	--	0.011	0.019	0.038
Copper - TR	ug/l	--	64000	500	23	38	75
Cyanide - free	mg/l	--	48	--	0.0052	0.022	0.044
Dissolved Solids - T	mg/l	--	--	--	1500	--	--
Fluoride – T	mg/l	--	--	2.0	--	--	--
Iron - TR	ug/l	--	--	5000	--	--	--
Lead - TR	ug/l	--	190	100	96	1800	3700
Magnesium	mg/l	--	--	--	--	--	--
Manganese - TR	ug/l	--	61000	--	--	--	--
Mercury - T[b]	ng/l	1.3	3.1	10000	910	1700	3400
Molybdenum – TR	ug/l	--	10000	--	20000	190000	380000
Nitrate-N + Nitrite-N	mg/l	--	--	100	--	--	--
Phenol	ug/l	--	2400	--	400	4700	9400
Phosphorus	mg/l	--	--	--	--	--	--
Sulfate	mg/l	--	--	--	--	--	--
Strontium - TR	ug/l	--	1400000	--	5300	48000	95000
TKN	mg/l	--	--	--	--	--	--
Zinc - TR	ug/l	--	35000	25000	720	720	1400

b = bioaccumulative chemical of concern

Table 6. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Stream Flows				
1Q10	cfs	annual	67.2	USGS 4183500, 4191500, 4185000
7Q10	cfs	annual	94.1	USGS 4183500, 4191500, 4185000
		summer	0	
		winter	0	
30Q10	cfs	summer	137.5	USGS 4183500, 4191500, 4185000
		winter	310.5	USGS 4183500, 4191500, 4185000
Harmonic Mean	cfs	annual	650.5	USGS 4183500, 4191500, 4185000
Mixing Assumption	%	average	25	
	%	maximum	100	
Hardness	mg/l	annual	234	Defiance 901, 2003-08, N=34
pH	S.U.	summer	8.15	Defiance 901, 2003-08, N=23
		winter	7.92	Defiance 901, 2003-08, N=16
Temperature	C	summer	25	Defiance 901, 2003-08, N=23
		winter	4	previous WLA, from Defiance 901
Effluent flows	cfs	annual	2.8	GM Outfall 001 (1.8 MGD)
			0.15	GM Remediation (0.1008 MGD)
			9.3	Defiance WWTP (6.0 MGD)
Background Water Quality				
Ammonia-N (sum.)	mg/l		0.05	Defiance 801, ½ MDL
Ammonia-N (win.)	mg/l		0.05	Defiance 801, ½ MDL
Antimony	ug/l		2.5	GM app.; n=4; <MDL; GM intake mean
Arsenic - TR	ug/l		1	STORET; 1997; n=10; 7<MDL; 1/2 MDL
Barium – TR	ug/l		56	HELP Ecoregion ref. site median; n=195.
Bis(2-ethylhexyl)phthalate	ug/l		0	No representative data available.

Boron	ug/l	0	No representative data available.
Bromomethane	ug/l	0	No representative data available.
Chloride	mg/l	20	BWQR; n=121, 0<MDL; Maumee Basin med
Chlorine TRes	mg/l	0	No representative data available.
Copper - TR	ug/l	0	STORET; 1997; n=10; 10<MDL; All values
Cyanide - free	mg/l	0	No representative data available.
Dissolved Solids – T	mg/l	339	STORET; 1997; n=10; 0<MDL.
Fluoride – T	mg/l	0	No representative data available.
Iron - TR	ug/l	1090	BWQR; ; n=225; 0<MDL; Maumee Basin me
Lead - TR	ug/l	2	STORET; 1997; n=10; 5<MDL; 1/2 MDL
Magnesium	mg/l	28.3	BWQR; ; n=283; 0<MDL; Maumee Basin me
Manganese - TR	ug/l	0	No representative data available.
Mercury – T	ng/l	0	No representative data available.
Molybdenum	ug/l	0	No representative data available.
Nitrate-N + Nitrite-N	mg/l	1.6	STORET; 1997; n=10; 0<MDL; median valu
Phenol	ug/l	0	No representative data available.
Phosphorus	mg/l	0.18	BWQR; ; n=503; 10<MDL; Maumee Basin m
Sulfate	mg/l	0	No representative data available.
Strontium - TR	ug/l	1160	HELP Ecoregion ref. site median; n=195.
TKN	mg/l	1	BWQR; ; n=443; 2<MDL; Maumee Basin me
Zinc - TR	ug/l	10.5	STORET; n=10; 4<MDL;

Dissolved Metal Translators:

Copper	1.257
Lead	6.426
Zinc	2.972

Table 7. Summary of Effluent Limits to Maintain Applicable WQ Criteria

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
				Average		Maximum	
		Wildlife	Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Ammonia-N (sum.)	mg/l	--	--	--	11.7	--	--
Ammonia-N (win.)	mg/l	--	--	--	102	--	--
Antimony	ug/l	--	11230	--	555	5884	1800
Arsenic - TR	ug/l	--	8362	1431	440	2223	680
Barium – TR	ug/l	--	2292040	--	536	12708	4000
Bis(2-ethylhexyl)phthalate	ug/l	--	462	--	25	7209	2100
Boron	ug/l	--	11899640	--	8989	198777	17000
Bromomethane	ug/l	--	37544	--	47	249	7!
Chloride	mg/l	--	--	--	--	--	--
Chlorine - TRes	mg/l	--	--	--	0.032	0.12	0.038
Copper - TR	ug/l	--	924165	7220	68	249	75
Cyanide - free	mg/l	--	693	--	0.015	0.14	0.044
Dissolved Solids - T	mg/l	--	--	--	3739	--	--
Fluoride – T	mg/l	--	--	28.7	--	--	--
Iron - TR	ug/l	--	--	57551	--	--	--
Lead - TR	ug/l	--	2717	1417	279	11786	3700
Magnesium	mg/l	--	--	--	--	--	--
Manganese - TR	ug/l	--	880845	--	--	--	--
Mercury – T (BPO)	ng/l	6.7	44	143000	2700	11000	3400
Mercury – T (APO)	ng/l	1.3	3.1	10	0.91	1700	3400
Molybdenum	ug/l	--	143279	--	58525	1236557	380000
Nitrate-N + Nitrite-N	mg/l	--	--	1423	--	--	--
Phenol	ug/l	--	34392	--	1171	30589	940(
Phosphorus	mg/l	--	--	--	--	--	--
Sulfate	mg/l	--	--	--	--	--	--
Strontium - TR	ug/l	--	20046423	--	13283	306004	95000
TKN	mg/l	--	--	--	--	--	--
Zinc - TR	ug/l	--	501407	358108	2088	4628	1400

BPO = Before BCC mixing zone phase-out (11/15/2010)
APO = After BCC mixing zone phase-out

Table 8. Parameter Assessment for Outfall 001

Group 1: Due to a lack of criteria, the following parameters could not be evaluated at this time.

Chloride	Magnesium	Phosphorus
Potassium	Sulfate	TKN

Group 2: PEQ < 25 percent of WQS or all data below minimum detection limit. WLA not required. No limit recommended; monitoring optional.

Antimony	Arsenic - TR	Bromomethane
Cadmium - TR	Iron - TR	Lead - TR
Manganese - TR	Molybdenum - TR	Nitrate-N + Nitrite-N
Phenol	Strontium - TR	Zinc - TR

Group 3: PEQ_{max} < 50 percent of maximum PEL and PEQ_{avg} < 50 percent of average PEL. No limit recommended; monitoring optional.

Ammonia (win.)	Barium - TR	Boron
Copper - TR	Dissolved Solids - T	Mercury (BPO)

Group 4: PEQ_{max} >= 50 percent, but < 100 percent of the maximum PEL or PEQ_{avg} >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

Ammonia (sum.)	Bis(2-ethylhexyl)phthalate	Chlorine TRes
Cyanide, free	Mercury (APO)	

Group 5: Maximum PEQ >= 100 percent of the maximum PEL or average PEQ >= 100 percent of the average PEL, or either the average or maximum PEQ is between 75 and 100 percent of the PEL and certain conditions that increase the risk to the environment are present. Limit recommended.

Limits to Protect Numeric Water Quality Criteria

			Recommended Effluent Limits	
Parameter	Units	Period	Average	Maximum
Fluoride – T	mg/l		28.7	--

Cyanide - free requires a permit tracking requirement in accordance with OAC 3745-33-07(A)(2) since the PEQ is > or = 75 percent of the PEL.

Table 9. Final effluent limits and monitoring requirements for GM Powertrain outfall 2IN00004001 and the basis for their recommendation.

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Flow	MGD	---------- Monitor ----------				M[c]
Dissolved Solids	mg/l	---------- Monitor ----------				M[c]
Suspended Solids	mg/l	--	--	42.0	106	BPT/NSPS
Ammonia-N	mg/l	---------- Monitor ----------				M[c]
Oil and Grease	mg/l	11.6	20	27.9	83.6	ABS/EP; BPT/NSPS
pH	S.U.	---------- 6.5 to 9.0 ----------				WQS
Chlorine Residual	mg/l	--	0.038	--	--	WLA/IMZM
Cyanide, Free	mg/l	---------- Monitor ----------				M/RP[c]
Fluoride, T	mg/l	---------- Monitor ----------				M/RP[c]
Barium, T. R.	µg/l	---------- Monitor ----------				M[c]
Copper, T. R.	µg/l	68	75	0.36	0.52	WLA/EP; EP
Lead, T. R.	µg/l	279	608	0.729	1.49	WLA/EP; BAT/NSPS
Mercury, T.	ng/l	---------- Monitor ----------				M/RP[c]
Zinc, T. R.	µg/l	424	520	0.827	2.374	ABS/EP; BAT/NSPS
Phenolics, T	µg/l					
Summer		--	--	0.33	0.5	ABS/EP
Winter		--	--	1.63	4.65	ABS/EP
Bis(2-ethylhexyl) phthalate	µg/l	---------- Monitor ----------				M/RP[c]
Whole Effluent Toxicity						
Acute	TUa	-------- Monitor (w/o trigger) ----------				M[c]
Chronic	TUc	-------- Monitor (w/o trigger) ----------				M[c]

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); BAT = Best Available Treatment Technology, 40 CFR Part 464, Metal Molding and Casting Industry; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 464; EP = Existing Permit; M = Monitoring; NSPS = New Source Performance Standards, 40 CFR Part 464;RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WET = Whole Effluent Toxicity (OAC 3745-33-07(B)) ; WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 10. Final effluent limits and monitoring requirements for GM Powertrain outfall 2IN00004002 and the basis for their recommendation.

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Flow	MGD	---------- Monitor ----------				M[c]
Bypass Duration	hrs./day	---------- Monitor ----------				M[c]
Ammonia-N	mg/l	---------- Monitor ----------				M[c]
pH	S.U.	---------- 6.5 to 9.0 ----------				WQS
Copper, T. R.	µg/l	---------- Monitor ----------				M[c]
Lead, T. R.	µg/l	---------- Monitor ----------				M[c]
Mercury, T.	ng/l	---------- Monitor ----------				M[c]
Zinc, T. R.	µg/l	---------- Monitor ----------				M[c]

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: M = Monitoring; WQS = Ohio Water Quality Standards (OAC 3745-1).

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Attachment A – Summary Page from Ohio Integrated Water Quality Report

Ohio EPA 2008 Integrated Report Section M3
Large River Assessment Unit (LRAU) Results

LRAU Description
Maumee River Mainstem (Indiana border to Lake Erie)

LRAU Size (mi²)
6608.0

Integrated Report Assessment Category: 5

Priority Points: 10

Next Scheduled Monitoring: 2016

Aquatic Life Use (ALU) Assessment

Subcategories of ALU: WWH

Sampling Year(s): 1997, 1998, 2002

Impairment: Yes (5)

LRAU Total Length (miles):	107.87	No. Miles Full Attainment:	23.60
LRAU Monitored Miles:	95.67	No. Miles Partial Attainment:	26.72
No. Sites Sampled:	35	No. Miles Non-Attainment:	45.35

% LRAU Attainment (Monitored Miles)

Full	Partial	Non
24.7	27.9	47.4

High Magnitude Causes	High Magnitude Sources
Flow Alteration	Nonirrigated Crop Production
Direct Habitat Alterations	Channelization - Agriculture
Turbidity	Combined Sewer Overflow
Nutrients	Major Municipal Point Source
Unionized Ammonia	
Siltation	
Total Toxics	

Recreation Use Assessment

Subcategory of Use: Primary Contact

Impairment: No (1)	Cause:	Geometric Mean: 127
No. of Ambient Sites: 4	No. of Ambient Sampling Records: 42	75th %ile: 390
No. of NPDES MOR Sites: 7	No. of NPDES MOR Records: 504	90th %ile: 900

Other:

Public Drinking Water Supply Assessment

Location(s): Maumee River @RMs 23.16 [Bowling Green], 35.91 [McClure], 45.88 and 47.10 [Campbell Soup], 47.13 [Napoleon], and 65.84 [Defiance]

Impairment: Yes (5)	Nitrate Indicator: Impaired
Cause: Nitrate	Pesticide Indicator: Full Support, Watch List

Fish Tissue Assessment

Large River Sampled: Yes	Impairment: Yes (5-Historical Data)
Miles Monitored: 106.30	Miles Impaired: 106.30

Pollutant(s): PCBs

Comments

The City of Toledo has initiated a major CSO remediation project which will positively benefit the lower mainstem within Lucas County. Future monitoring of the Maumee River mainstem assessment unit will be conducted within the normal rotating basin schedule after the cessation of the project and when sufficient recovery time has elapsed. Besides the aquatic life use impairment, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption. While the fish tissue data are now historical, the assessment unit will remain Category 5 until TMDLs are developed for all pollutants impairing all beneficial uses. Led by the Natural Resources Conservation Service and the U.S. Army Corps of Engineers, federal, state, and local partners have initiated a comprehensive investigation of measures to improve fish and wildlife habitat, navigation, flood damage reduction, recreation, and water quality in the western Lake Erie basin including the Maumee, Ottawa and Portage River watersheds. For more information, see www.wleb.org.

Attachment B – Effluent Guideline Calculations for GM Powertrain

GM Powertrain Defiance Effluent Guideline Calculations

			Slag Quench Production ton/day:	Fe Slag Quench Loading						
	lbs./million lbs.		180	kg/day						
	30-day	Daily		30-day	Daily					
TSS	2.73	6.91		0.4467273	1.1307273					
Oil&grease	1.82	5.46		0.2978182	0.8934545					
Copper, T.	0.0291	0.0527		0.0047618	0.0086236					
Lead, T.	0.0709	0.144		0.0116018	0.0235636					
Zinc, T.	0.102	0.267		0.0166909	0.0436909					
Phenolics, T.	0	0		0	0					
	Wet Dust Scrubbers 464.32c-464.33c		Scrubber Throughput billion SCFM:	Wet Dust Scrubbers Loading		Melting Furnace Scrubbers 464.32f-464.33f		Scrubber Throughput billion SCFM:	Melting Furnace Scrubber Loading	
	lbs./billion SCF		6.09	kg/day		lbs./billion SCF		0.428	kg/day	
	30-day	Daily		30-day	Daily	30-day	Daily		30-day	Daily
TSS	11.3	28.5		31.280	78.893	52.6	133		10.233	25.875
Oil&grease	7.51	22.5		20.789	62.284	35	105		6.809	20.427
Copper, T.	0.12	0.218		0.332	0.603	0.561	1.02		0.109	0.198
Lead, T.	0.195	0.398		0.540	1.102	0.911	1.86		0.177	0.362
Zinc, T.	0.278	0.736		0.770	2.037	1.3	3.44		0.253	0.669
Phenolics, T.	0.225	0.646		0.623	1.788	1.05	3.01		0.204	0.586
	Al Casting Quench 464.14		Casting Quench Production tons/day:	Al Casting Quench Loading		Outfall 2IN00004001 Effluent Guideline Totals:				
	lbs./million lbs.		22	kg/day		kg/day				
	30-day	Daily		30-day	Daily	30-day	Daily			
TSS	0.182	0.46		0.00364	0.0092	41.964	105.908			
Oil&grease	0.121	0.363		0.00242	0.00726	27.898	83.612			
Copper, T.	0.0051	0.0093		0.000102	0.000186	0.446	0.811			
Lead, T.	0.0047	0.0096		0.000094	0.000192	0.729	1.487			
Zinc, T.	0.0052	0.0138		0.000104	0.000276	1.039	2.751			
Phenolics, T.	0	0		0	0	0.827	2.374			